Field Journal

Dec. 1957

Marguerite Ford

Allan McEwen

National Museum
of Victoria
Russell St
Melbourne

Time + Tide
Sat Nov 2
1929

A.N.A.R.E. "Change-over"

Trip to Macquarie 25

Dec 1957

Biologist members.

Dr. R Carrick - Ecology

Dr. R. Falla - Ornithology

Kent Keith - Ecology

George Dunnet - Ornithology

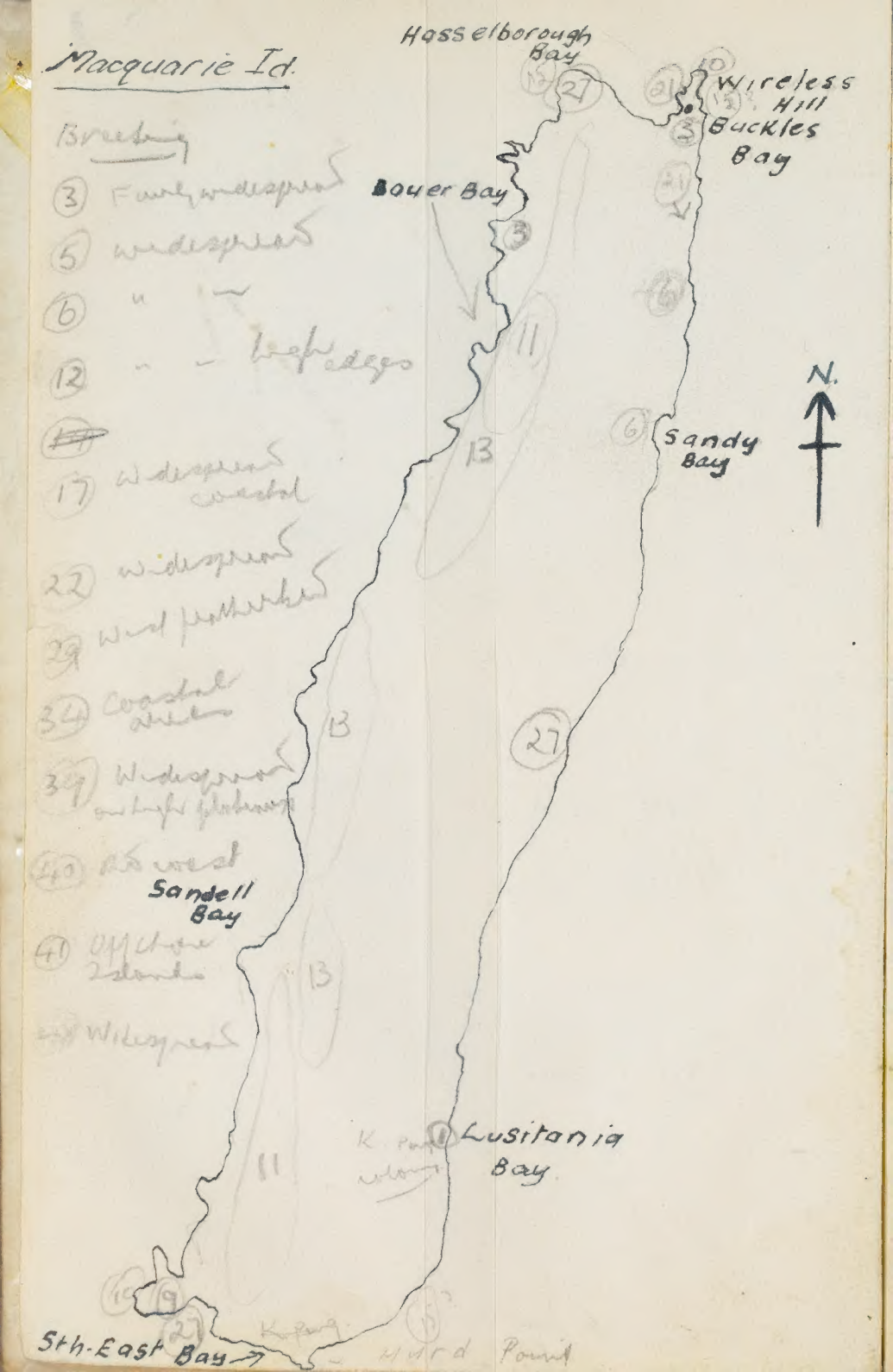
Wes Wilson - Mammalogy Implantation

Dennis Murray - Mammal Ecol Bird Banding

Ecology

Frank Ommanney - Geophysicist.

N/B The Life Cycle of Wilson's Petrel Oceanites oceanicus (Kuhl) by Bruce Roberts M.A. (Hons) D.Sc. (Natl. Hist) Brit. Graham Land Expedition 1934-37 Scientific Reports Vol 1 No 2 pp 141-194.


Macquarie Id.
Hasselborough Bay
Wireless Hill
Buckles Bay
Bauer Bay
Sandy Bay
N.
Sandell Bay
Lusitania Bay
Sth-East Bay
Hurd Point
Breeding
3 Fairly widespread
5 widespread
6 "
12 " — locally
17 Widespread coastal
22 widespread
29 Wind pushed
34 Coastal
39 Widespread on high plateau
40 Rare west
41 Offshore islands
Widespread

Macquarie Island Bird List

Order Sphenisciformes

1. *Aptenodytes patagonica* Miller * — King Penguin
2. *Pygoscelis adeliae* (Hom & Jacq) — Adelie Penguin
   Gwynn 1960
3. *Pygoscelis papua* (Forster) * — Papua / Gentoo Penguin
   S.W.N.Z. checklist
4. *Pygoscelis antarctica* (Forster) — Chinstrap Penguin; Bearded (Ringed) Penguin
   1953.
   1956, 1959
5. *Eudyptes chrysocome* (Forster) * — Rockhopper Penguin
6. *Eudyptes chrysolophus schlegeli* Finsch * — chrysolophus; Royal Penguin
7. *Eudyptes pachyrhynchus sclateri* Buller — pachyrhynchus; (erect-crested) Big-crested (Sclater's) Penguin
   Struggle 1912.
   2 spec. Mech. Hines 1957.
8. *Eudyptes pachyrhynchus strahus* Snares Isl. Penguin
   Sinclespos 1950.
   1 spec. M. Hines 1957

51 *Megadyptes* — Yellow-eyed Penguin
Seen by Stephen 1957

Note W.L.S last melodes only
E.p. sclateri

Order Procellariiformes

9. Diomedea chrysostoma Forster Grey-headed Alb. *

10. Diomedea melanophris Temm. Black-browed Alb. * N.Z. Int.

11. Diomedea exulans L. Wandering Alb. * N.Z. Int.

12. Phoebetria palpebrata (Forster) Grey-mantled Alb. *

13. Macronectes giganteus (Gmel) Giant Petrel *

14. Fulmarus glacialoides (Smith) Silver-Grey Petrel (Fulmar) 1 Fragment W.L.S. K.K. 1951

15. Daption capense (L) Cape Petrel N.Z. reputed no breed.

16. Halobaena coerulea (Gmel) Blue Petrel ? Campbell Is. * Auckland Is. Prob Burton ← called by Burton 1898 Prob Burton meant Prion — Falla

17. Pachyptila desolata (Gmel) Dove Prion *

18. Pachyptila turtur (Kuhl) Fairy Prion ? (2) 1956 K.K. : W.L.S.

Du Faila. Soap-bird. Sooty - but dress of — the
wrecked Head Cleaner: nobody looks for Black collected for
them. Hamiltons
(Pedrinker) Grey Petrel. 1 egg & 2 skins
19 Procellaria cinerea Gmel. * Auct. mus. N.Z. Chat.
(= Adamastor cinereus) 2 eggs from M Hibbs '57

20 White-chinned petrel. - cape pigeon
Procellaria aequinoctialis Steadi * NZ Checklist
Sooty Shearwater.
21 Puffinus griseus (Gmel) *
Puffinus tenuirostris 1960 W5585
22 White-headed Petrel.
Pterodroma lessonii (Garnot) *
23 1 skull (1956) among
Pterodroma inexpectata Kerguelen material - identified
Falla 1957. KK: WLS
24 Garrodia nereis (G): Grey-backed Storm Petrel
South Georg. Div. Pet.
25 Pelecanoides georgicus Murph.
N/B W.L.S lists. : this species
for our area as
No Georgicus from Murphy's 1899 Murphy & Harper
Murphy's record. 1 skin now stored Auck. Mus. June '49
2 murphy Div. Pet. Murphy's record ± ANHOR Fiji.
26 Pelecanoides urinatrix (Gmel.) NZ. Murphy's record W.L.S
may be
marginata
(Falla)

Order Pelecaniformes.
27 Phalacrocorax albiventer
nacs. Is. cor. m.
purpurascens (Brandt) *
50 Phalacrocorax carbo: Washed
up on lower
Awa. 1957

Order Ciconiiformes.
26 Egretta alba (L.) white 2 ad.
Seventy
Bird from
description

Order Anseriformes

29 Anas superciliosa Gmel (poecilorhyncha) W.A.S. list. *
Black duck.

30 Anas platyrhynchos L. 1999 Gwyn
Mallard.

31 Anas gibberifrons Sight. Dr Falla Dec 57

Order Falconiformes

32 Circus approximans Swamp Harr. Read from descript. Swyn

Order Gruiformes

33 Hypotaenidia philippensis (L) Banded Land rail
Australian
1880 Falla

34 Gallirallus australis scotti (Grant) Stewart Is weka
Ext. before 1880

35 Fulica atra L. Coot 2 Spm 1957 M. Heine

Order Charadriiformes

36 Limosa lapponica Pacific Bar.t. Godwit. baueri novae-zeelandiae }?
1 Rec. 1912
1 Spm 1951 Lindholm.

37 Calidris canutus (rogersi?) Knot.
1 Spm 1913. (Falla

38 Gallinago (hardwickii)?
1 Record. presumed 1947
Gwynn.

39 Sterna varia Southern Skua (Matthews 1912)
Sterna lonnbergi *

40 (Southern Blk-backed)
Dominican Gull
Larus dominicanus Licht. *

Dr Falla feels it is very similar but may be related to Hartlaub's Gull L. argentata N.Z. checklist suggests subsp of Blk-backed - but don't agree.

41 Antarctic Tern
Sterna vittata bethunei Eadie. *

(= macquariensis but Falla's

macquariensis not accept. in N.Z. checklist) N/Z Falla holds out for macquariensis as separate from Sth N.Z. & Falk. sens. bethunei confined to Sth N.Z. & Falk.

42 Wh. fronted Tern
Sterna striata (Gmel) ?

Reputedly ranging to macquarie Id - Hamilton in NZ checklist.

43 Arctic Tern
Sterna macrura N.Z.F. inf.

Order Psittaciformes

Cyanorhamphus novaezelandiae
? (erythrotis) (Wagler)

44 Macquarie Id Parakeet Lastnie 1880 - Falla
Extinct

Order Coraciiformes

Hirundapus caudacutus Sp. ? Swift.
1960: 1. N 5581

Order Passeriformes

Fam Nectariniidae

45 Zosterops sp. recorded 1915 (Falla)

Zosterops lateralis (Lath) NZ. checklist

Fam Fringillidae

46 Acanthis cabaret (Muller) Lesser Redpoll recorded 1913 last 1915 (Falla)

C. carduelis flammea cabaret Muller) NZ. check.

47 Carduelis carduelis Goldfinch 1 sp Keith 1936

Fam. Sturnidae

48 Sturnus vulgaris L. recorded 1930 (Falla)

1 Sp Keith 1936

Fam 49 Motacillidae

anthus sp.? [illegible] checklist

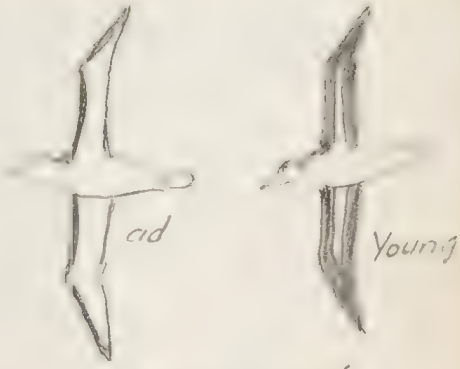
See also N Mariner

~~N~~ XVI-3 p 190

From Birds

Dorsal Surface.

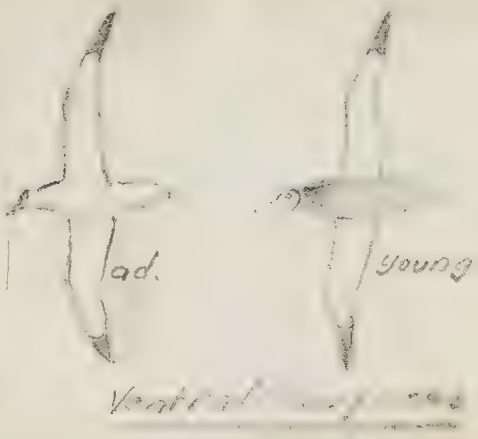
Diomedea melanophris - Bl K Brows.



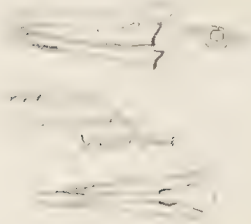
Ventral

Of the Ocean - Alexander

Diomedea
exulans
Wandering
Albatross.

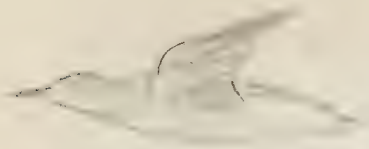


D. melanophris



Macquarie Island Journal

Sat
Dec 7th 57 Sailed from [illegible] 3 p.m.
[illegible] at 11 p.m.
Sky [illegible]



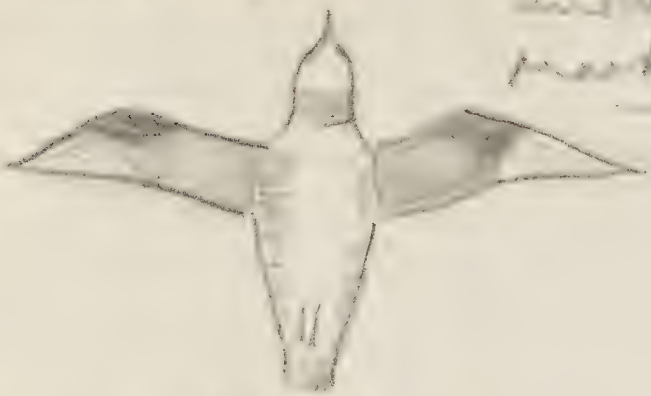
4.55 [illegible]

[illegible]

[illegible]

[

Golden eagle - like [illegible]



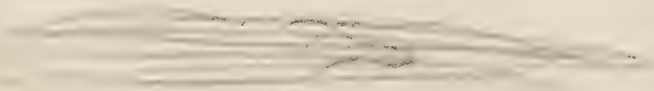
[illegible]

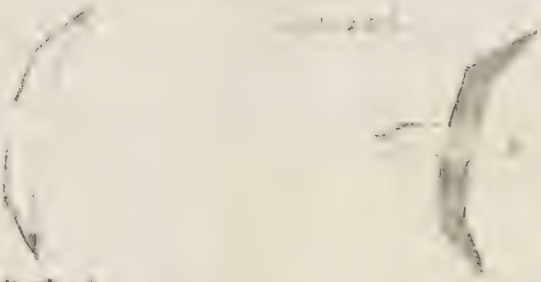
Tail feathers
note = not

[illegible]

[illegible]

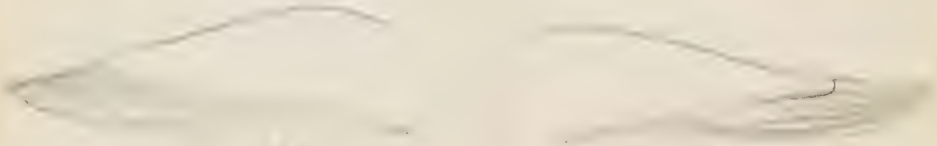
[illegible]

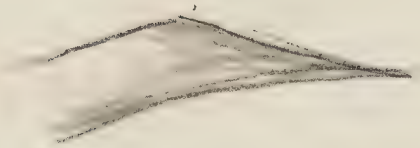




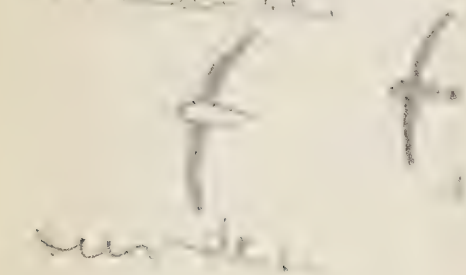
Sunday

Dec 8th 07-10 [illegible] Pleasant [illegible]
[illegible] Sun very calm
0 [illegible] heavy with a [illegible] sun
[illegible]





1000 3 P. maculata 3 D. melanogaster
1 Macrochaeta 1 Puncta



(illegible) 3 D. (illegible)

(illegible) 2 D. exulans 2 D. (illegible)
1 Parum

(illegible) 1 D. (illegible) 1 D. cordis
1 C. (illegible)

(illegible)

(illegible)

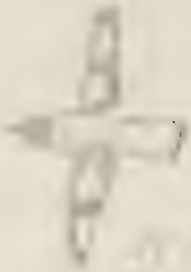
(illegible)

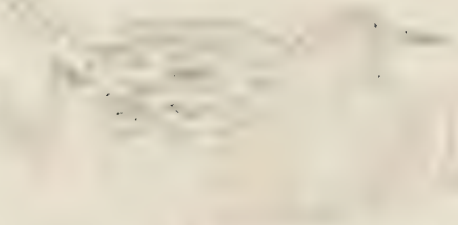
Med. Dec. 11th 0° 7.5° (illegible)
3 D. exulans 2 D. (illegible)
1 Pachyptila

1900 6 D. exulans 1 D. (illegible)
3 Macronectes Giganteus

saw the an inquiries the next
he has heard which [illegible]
~~[illegible]~~ why [illegible] are
disturbed by small bird
only 8-10 ft square there
may The [illegible] captured
Ricardi has caught me
imagination; I [illegible]
for some [illegible]
[illegible]

The days to [illegible] have been
spent [illegible] with [illegible]
[illegible] [illegible] [illegible]
[illegible] [illegible] [illegible]
[illegible] [illegible]





Note on Limestone Creek Habitat

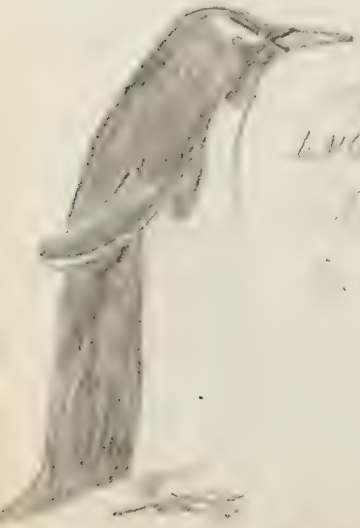
Steep slopes on west side with occurrence of cabbage and tuscocks grow.

Flat along the creek and tributary flows are grass flats and often have many pools of fine bottom gravel. The creek is mostly a series of riffle and pool sections with fairly steep gradient.

See also Sketch p 68
& note on p 70

Dec 15th Sunday

Obs on Eveleigh aboard ship "Long on the Helen" colour all black wind mild



54

1405 No change

1412 Bird came

of 1422. - [illegible] S.E.

1425 [illegible]

1430 Bell has occasionally made

until 1857 when it [illegible]

1517 No 2 [illegible]

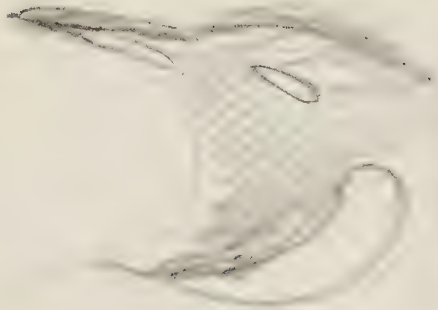
1520 No [illegible]

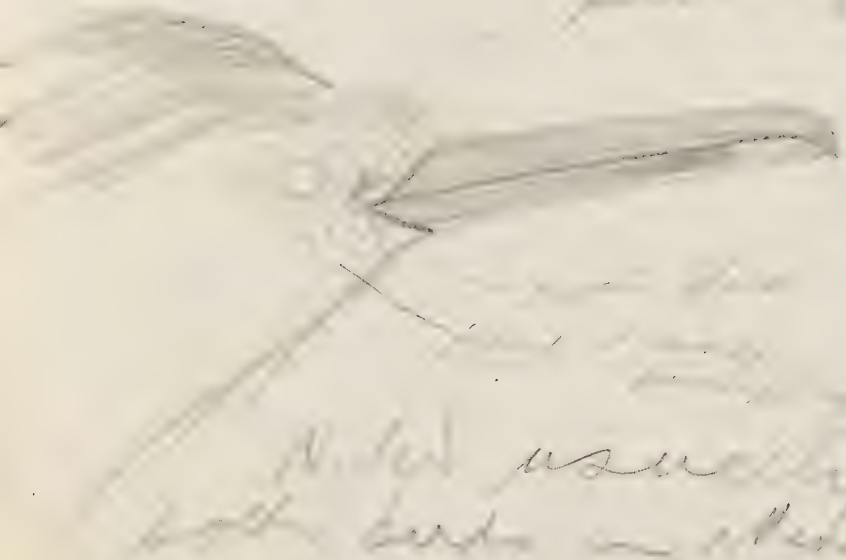
1522 Bertrandites [illegible]

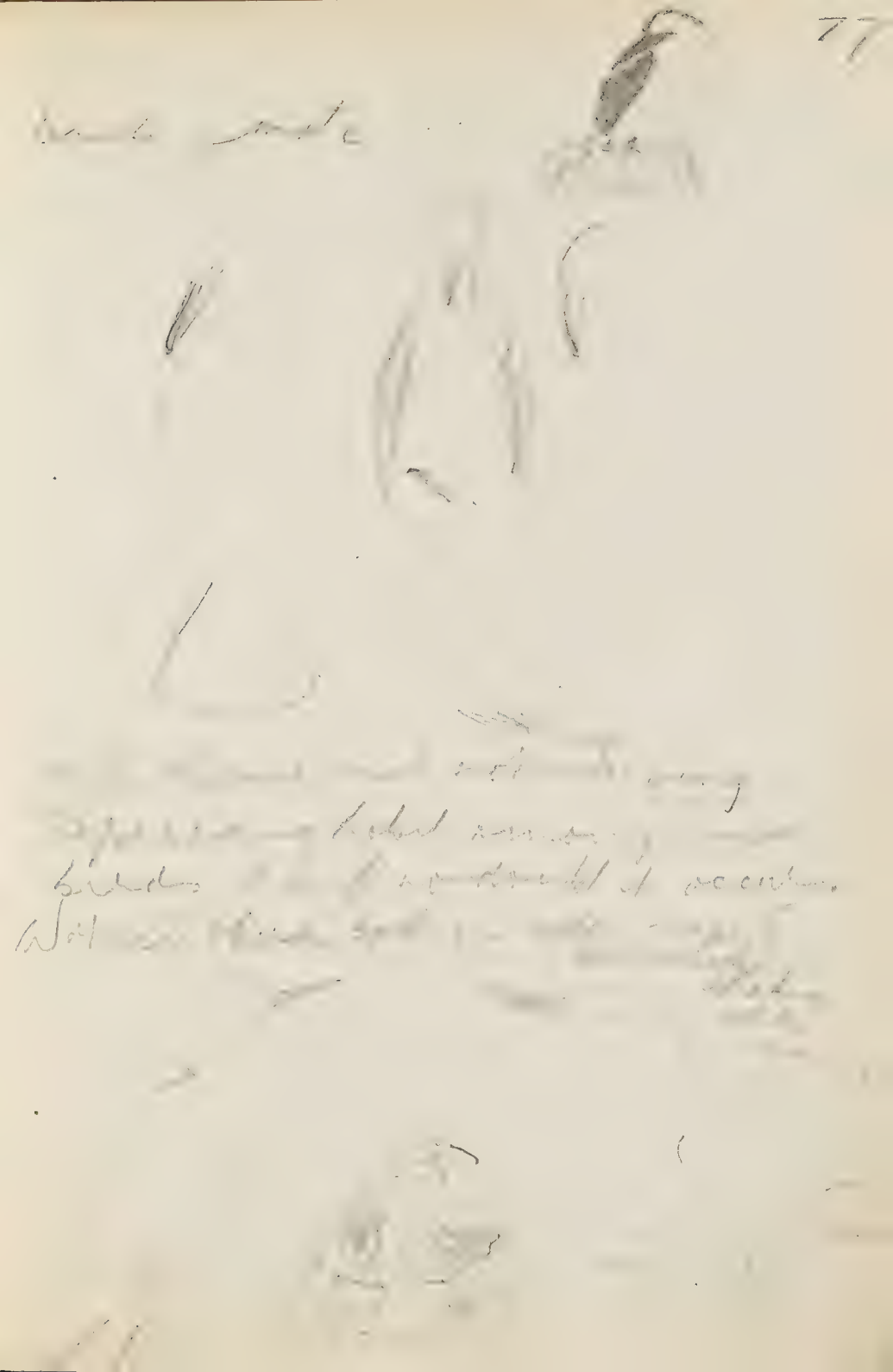
1525 No 2

1530 No change.

1534 No 2 burned with [illegible] NNW.



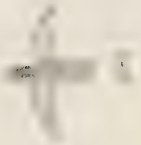




Toahenh : Jaggmeasurement

Notes on Highland
Cavalry during Napoleonic Wars

Dec 25th Wed Christmas Day



June 1960:

Antarctic Kelp 8'

Antarctic Tern : Sterna virgata

Anas gibberifrons 86-7

Pseudh. obtusa 85,

Dio... edea cauta cauta G. ♀ prep. ♂ Ketchup ♀ 15

(6) ♀ 10, 11, 12, 14 (Sketch) Nesting, eggs etc 85-7.

Tame roan ♂ 95.

Eudyptes chrysocome (Strene p17-18, posture notes 47, + morbunga) nest p79,

Eudyptes [illegible] Nuggets Nests p27,

Fregetta tropica (G): 1st rec, skeleton p2, 9, 11, 12,

Finch Creek Nole skeleton p31, -41

Little Pied Cormorant : See Phalacrocorax m.

Log : See Bird Log

Lesser Red poll Acanthe c. linaref

Pygoscelis papua · Nest eggs - 29 Postarc notes 45-46 Shirih. ind. p45

Pterodroma macroptera poss. rec. p8.

" " tenuirostris ibrec p6.

Prions see Pachyptila

Pachyptila app. : Ibrec p9, 10, 11, 95

Pterodroma lessonii Ibrec. p14, 15,

Pediunker : Lw Procellaria cinerea

Pterodroma inexpectata 15

Royal Penguin sive Eudyptes schlegeli

S

Skeldag: Skuas [illegible] p6

[illegible] p7

[illegible] S.S. lonnbergi p13/14

Stercorarius pa

Shy Albatross see Diomedea cauta.

Shearwaters: See Puffinus

Sh! shearwater, Ptenopunctata

Storm-Petrels See: Fregetta, Garrodia, Oceanodroma

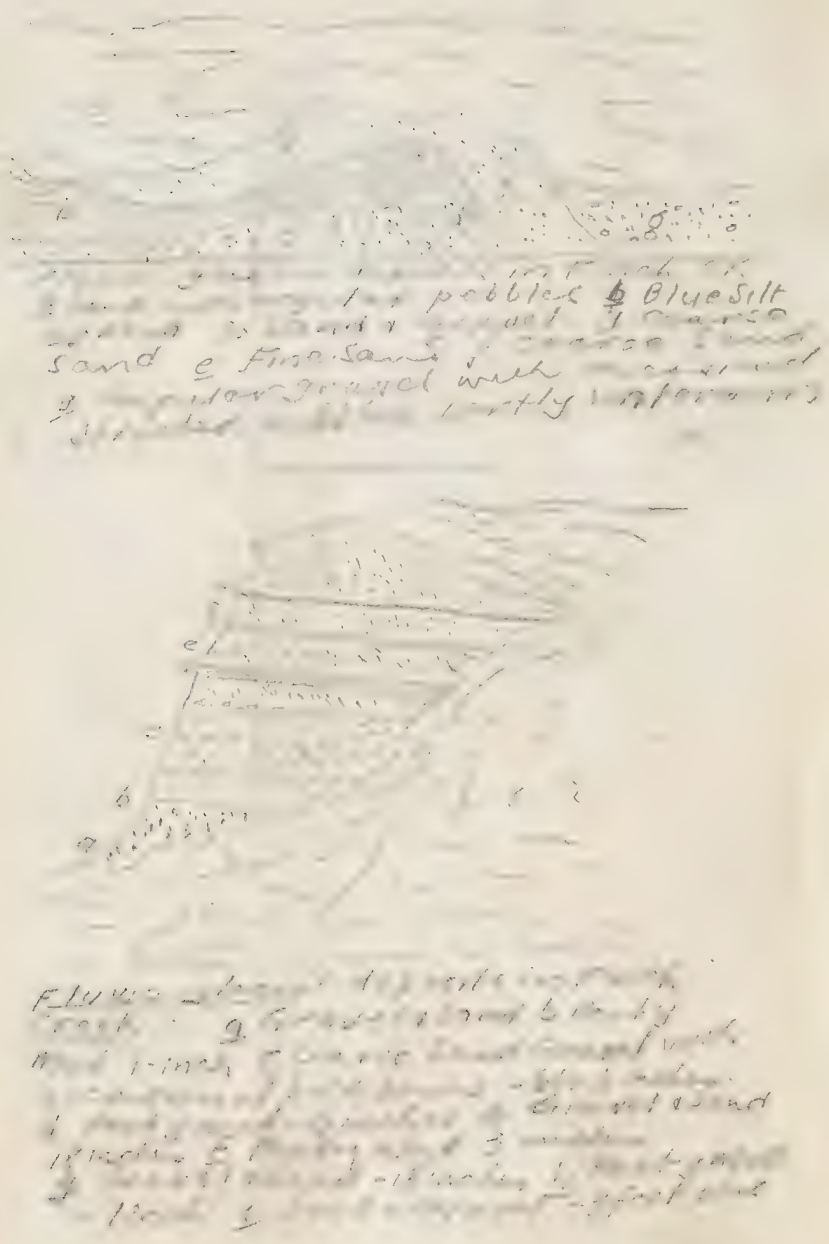
[illegible] p95

Skelf: ch (cont) P. cinerea pg

[illegible] Kelp p26 [illegible] p45 Sterna 57-61

[illegible] 93

Sterna virtata [illegible]



Diagrams & following notes extracted from 'Macquarie Island its Geography and Geology' by Douglas Mawson, and mainly on the records of Leslie Russell Clarke

the later period are usually quite fresh or nearly so.

As further implying some antiquity is the considerable degree of folding to which these rocks have been subjected. The amount of contortion is indicated by a series of dotted lines in one area (the north-east coast) of Blake's geological map.

As regards the age of this Older Basic Group, no direct evidence is available, but suggestions as to their antiquity are forthcoming from the New Zealand Region with which the Macquarie Island ridge appears to be structurally linked.

In late Triassic or Jurassic time, in the region of Tasmania and Antarctica, dolerite intruded the upper crust on a grand scale. Igneous activity also flared up in several places in New Zealand. As an example may be mentioned Bartrum's discovery[35] of a spilitic series of rocks associated with greywacke and other sediments of mid-Mesozoic age at Great King Island. This series is older than the extensive basaltic flows and pillow-lavas which Bartrum and Turner[36] have described from near Cape Maria van Dieman at the north-west extremity of the mainland of New Zealand. These latter are now regarded by the authors[37] as Upper Cretaceous or later.

In the light of what has been said above and what will be added herein in discussing other formations the age of Blake's Older Basic Group may be tentatively taken to be Hokonuian or Cretaceous.

Brit Antarctic. Exp. Scientific
1911-14 under Shackleton. Geology
Expedition. Report. Series A Vol. V
1925

"The rocks of the Older Basic Group can be assigned to no definite geological period, nor can any clue be obtained other than that they are the oldest observed on the Island."

Rocks of this division as mapped by Blake occupy a large area at the northern end of the Island, northward from Brody Bay; also he shows isolated patches on the east coast near Lusitania Bay and on the west coast in the neighbourhood of Sandell Bay.

Among the specimens of this group of rocks available for examination there are several which are pyroclastics, and an odd one or two which suggest that they were originally fine tuffaceous submarine sediments. Unfortunately none of the specimens bear any indication as to which series they belong; this can be inferred only by reference of the locality of collection to the field map (frontispiece).

An indirect piece of evidence bearing on this point is afforded by specimen [62], which shows an intrusive contact with one of the gabbroid rocks. Here the intruded rock, though now a hornfels, appears in all probability to have been a fine-grained sediment, possibly of pyroclastic origin.

What appears certain is that this series does not contain any continental type of sediment, for such could not have missed Blake's observation. It can therefore be accepted that the rocks contributing to it are at least predominantly dolerites and basalts, with which are associated some fine-grained, water-laid and, maybe tuffaceous deposits, possible submarine.

It is a feature of the rocks of this series as distinct from those of the Newer Basic Group that they usually exhibit some degree of mineral change; that is to say, they are as a whole palaeotypal in character, whereas the rocks of

STRATIGRAPHY.

The Older Basic Group.

Blake p 67.

According to Blake, "The oldest rocks met with on Macquarie Island are a series of basic lavas of some considerable thickness. In the main, these lavas have the nature and fabric of fine-grained dolerites. In some areas the presence of pyrite in amounts obvious to the naked eye is a common feature. The flows or sheets are each 2 or 3 feet in thickness and their great regularity suggests the appearance, when viewed from a distance, of stratified deposits. The maximum thickness of this series where it could be ascertained with any degree of accuracy, is not less than 650 feet, but may be very much more. For the most part, they are highly jointed, and on weathering break up into small cube-shaped blocks."

"At the northern end of the Island these rocks have been subjected to intense folding, the axes of these folds strike north-west to south-east, the dip varying from 45° to nearly vertical. The series is disrupted by numerous faults resulting from strains introduced subsequently to the deposition of the rocks of the Younger Basic Group, which uncomformably overlie them. Sills of dolerite porphyry and dykes of gabbro intrude the rocks of this group."

"Veins of quartz and calcite occur between the successive igneous sheets; veinlets of the same minerals fill the fissures formed by some of the larger joints. Pyrite is the common sulphide mineral associated with these veins, but chalcopyrite, galena, and sphalerite also occur."

icient to demonstrate that at Macquarie Island the glacial period was divided into three divisions corresponding with those established by A.N. Lewis in Tasmania. Such a record could well have resulted from changes in the land area owing to block faulting during the progress of glaciation. It appears incontrovertible that such block subsidences did take place in the Pleistocene, apparently corresponding to the Kaikouran deformation of New Zealand. The final result of such movements has been the submergence of portion of the ice-covered land and the survival of the present land mass as a horst.

During the height of the glacial period there can have been little if any of the land in that region not buried under ice. The only suggestion to the contrary comes indirectly from the existence on the Island to-day of certain invertebrates, apparently not capable of migrating across the sea, and whose presence appears to suggest that they are survivors from pre-glacial times.

Marine erosion which, in that latitute in the Southern Ocean, is a powerful agent, has in recent times carved a notable wave-cut platform around the Island. A very recent positive movement of the land, possibly related to isostatic adjustment after relief from the former ice load, has raised the wave-cut platform up to a height of 40 feet above sea-level. This raised-beach terrace is now, in its turn, being rapidly cut back. So rapidly is its destruction being accomplished that arms of it which protected what were known to the early sealers as Caroline Bay and South-East Bay are now represented only by broken chains of submerged reefs and rocks; thus have been rendered useless what at one time were serviceable anchorages.

The eroded land surface then, in part or whole, subsided to some considerable depth beneath the sea, receiving over it a deposit of Globigerina ooze. Then followed another period of diastrophism with large outpourings of glassy, basaltic pillow-lava which burst through the Globigerina ooze of the sea- floor. This effusion may correspond in time with that of the tachylitic pillow-lavas of the marine Miocene at Oamaru. The volcanic period appears to have ended with an area of land in the region of Macquarie Island probably considerably greater than exists at present.

After some degree of peneplanation of the land had been effected the Pleistocene Ice-Age intervened.

There is abundant evidence that any land that existed in the neighbourhood of Macquarie Island during the Pleistocene period suffered extreme glaciation. Certainly all that now remains was over-ridden by an ice sheet of considerable proportions which, from a gathering ground further to the west, moved towards the east-north-east across the present land area. The fact that the herzburgite found in situ only on the western margin of the Island was carried as erratics by the ice to the east coast leaving a train of dumped blocks across the highlands at an elevation of about 1,200 feet above its present in situ location is proof that the glaciation was on a grand scale, and that the main ice-cap was situated to the west of the present Island mass where there is now deep sea.

Though Blake located near Nuggets Point three superimposed moraines, the varying rock assemblage in each indication different sources of supply and varying directions of ice-movement, yet this information alone is not suff-

SUMMARY OF GEOLOGICAL HISTORY.

The earliest rock formation on the Island, Blake's Older Basic Group, is a thick series of basaltic flows and sills with associated tuffaceous greywacke. This formation may be Tertiary in age, but probably dates back to about middle-Mesozoic, and may be referable to the period of large-scale intrusions of dolerite into the Triassic sediments of Tasmania and Antarctica, and linked with the dissolution of Gondwana Land. Certain mineralogical changes which have been subjected to a high degree of folding since their formation supports the view that they may well be pre-Tertiary in age.

This oldest formation suffered crumpling, probably in Cretaceous or early-Tertiary time, and into the folded system welled up gabbroic magmas which by gravitative differentiation has yielded a well-graded series of gabbros and peridotites, probably homotaxial in point of age with the Dun Mountain ultramafic intrusion of New Zealand. There has been observed some local thermal metamorphism of the invaded rocks, as well as cases of prophylitization with the introduction on a small scale of mineral veins carrying sulphides of iron and copper and less frequently lead and zinc which in some occurrences were found to be argentiferous.

Up to this time there is no clear indication as to whether the rock formation was sub-aerial or sub-marine.

Then followed a period of erosion, apparently sub-aerial, which laid bare the plutonite masses. This appears to have been in late Cretaceous and early Tertiary time.

The Finch Creek Beds with Bird Bones.

These are regarded as late-glacial or early post-glacial in age. They are about 15 feet in thickness and are situated in the bed of an old U-shaped valley. Blake records that: "Two interesting sections were observed in the bank of the creek, where it has cut a narrow channel through these deposits (figs.39 and 40). A section across this old valley (fig.40) exposes, besides peaty mud, sand, and gravel of lesser interest, a conglomerate [233] composed of sub-angular pebbles with limonitic cement; in it, bird bones are sparsely distributed. This bed which, with underlying gravel and sand, is 8 feet in thickness, exhibits current bedding. Above this again are fine sub-angular sands and gravels in which are interbedded horizontally intercalations of consolidated mud containing vegetable remains. The presence of these bird bones,* which are in all probability those of a species of penguin, points to the existence of animal life on the Island at least as long ago as the closing stages of the ice age."

*These bones are too fragmentary and decomposed to allow of specific determination.

Camera focussing: Power 2 Dioptre

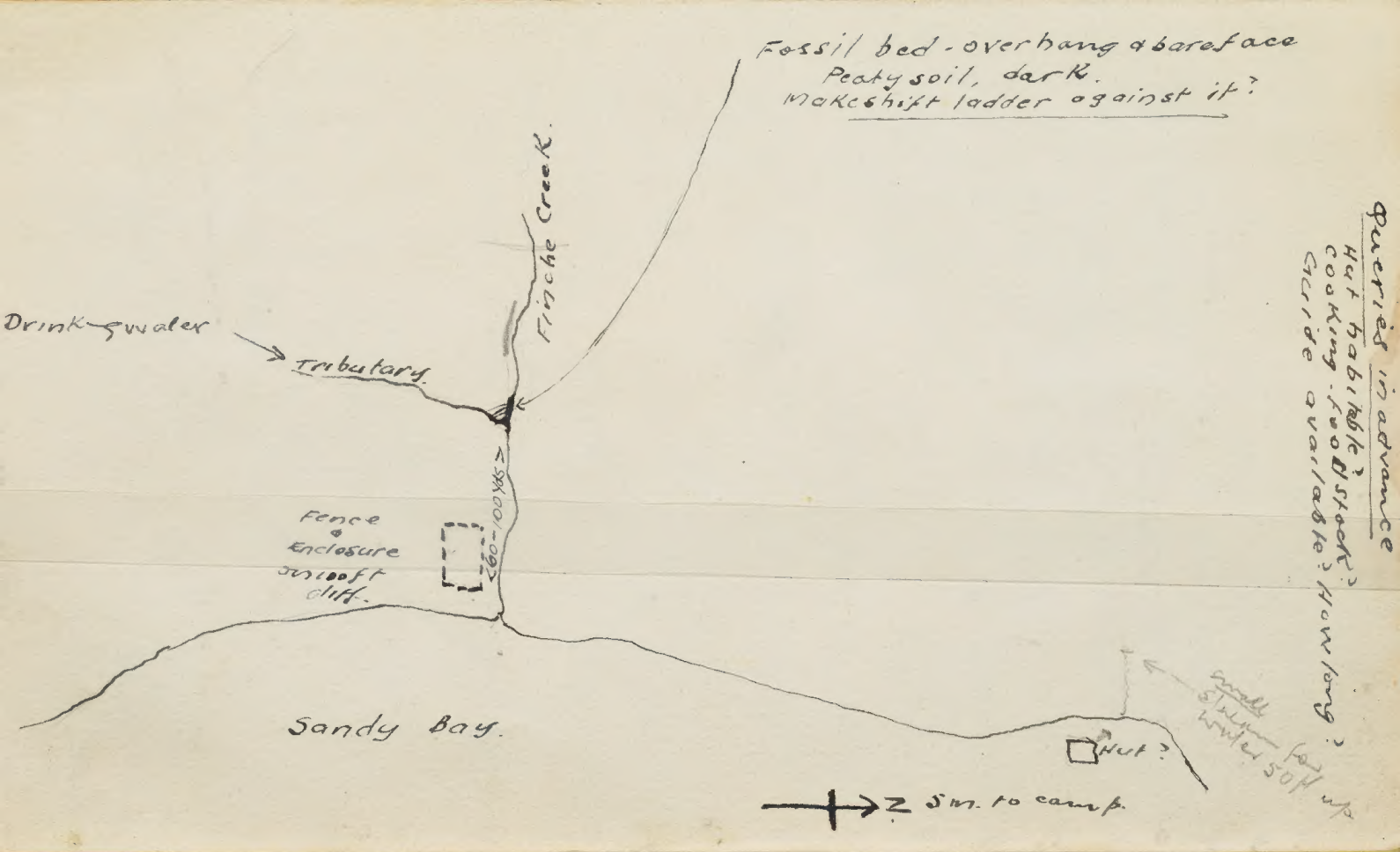
Distance	Reading
8 - 8½"	Full extent
12·75"	End of scale
13·95"	4 ft
14·85"	5"
15·45"	6"
15·95"	7"
16·35"	8"
16·65"	9"
16·90"	10"
17·35"	12"
17·75"	15"
18·20"	20"
18·50"	25"
18·70"	30"
19·10"	50"
19·70"	INF.

Plants: Ferns. Alec Burns
Alec & Burns.
Specs Nat. Herb.

Rocks: chin. Mus. St. Doc.

Insects: Dudley's
Carabus Cursor Arctor
"Seaspider" Alec B.

Mrs Mabel Heather


Fossil bed - overhang & bare face
Peaty soil, dark.
Makeshift ladder against it?
Finche Creek.
Drinkwater
Tributary.
Fence & Enclosure on 100 ft cliff.
60-100 yds
Sandy Bay.
Hut?
2 Sm. to camp.
Queries in advance
Hut habitable?
Cooking. Food stuffs?
Grade available? How long?
Small stream (fair) water 50 H up

SEQUENCE of NOTES

Lace map.

1. Map the site - geographic association
2. Map extent of beds. - Where others are ↓
3. Position relative to sea
4. Height of base of bed above sea.
5. Reason for overhang. Do here overhang?
6. State of creek - Why has deposition ceased - why overhang.
7. Thickness of bed - vertical thickness
8. Disposition - horizontal, on angle etc
9. What it rests on - sedimentary beds? base rock? below.
10. What overlies the bed.
11. Internal structures in bed: Any cross bedding, breaks, divisions in sedimentation etc
12. Colour of bed.
13. Character of Sediments: Even grained or mixture of sand, boulders etc.
14. Constituent grains rounded or sharp? (i.e. water-worn?)
15. Relationship of Bones to the Deposit: are the bones in character with the bed i.e. their setting, ∴ deposited with it, or do they give impression of a secondary origin i.e. placed in nesting burrows, dumped there etc.
16. check measurement of sketch
17. check sketch of sediment

Hand

Collect

1. pH sample: (pH: quantitative expression for acidity or alkalinity of solution. ie concentration of hydrogen or hydroxyl ions. Scale ranges from 0-14, pH7: neutral, less than 7 acid, more than 7 alkaline.) Cut out large unselected sample (6" cube) - record how far above base sample taken - leave sample in plastic bag with physicist for checking. Use matrix

2. Radio-Carbon Dating Sample:
   In order of preference: 1 wood, twigs, leaves
   2 calcareous shell: ordinary bivalve univalves etc
   bring good few shells if available
   3 any other carbonaceous or carbonate material eg peat (a pound), organic ooze (as much as possible)

   If peat below fossils label. If pure peat (also for coal) not large if peaty mud - large sample.

3 Fossils In tins: Broad selection

4 Matrix in which fossils occur (tin full large)

5 Sample of Ironstone conglomerate
   note relationship to bed

6 Diatomaceous mud + peat - coastal cliff overlying glacial boulder clay 1/4 mile nth of Nuggets Point.

7 Soil sample? peat from some other site - note where & at what depth from surface

Photos. 1. General setting ie - landscape
2 Photo of bed
3. Bones in situ with objects. Size scale